UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
BAKER, STEPHEN M

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2133	8

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application 09/965,955	Applicant(s) TAIRA ET AL.
	Examiner Stephen M. Baker	Art Unit 2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

    1.☒ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5,6*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

Specification

1.   The disclosure is objected to because of the following informalities: where the

language of the specification echoes the claim language rejected below under 35 USC

112, amendments corresponding to those suggested below for the claims are

apparently necessary.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

2.   Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

Claim 1 is elliptical, vague and awkwardly worded, and apparently should be

amended as follows:

> 1.   An error correction coding method for use with an error correction coding
> apparatus, comprising the steps of:
>   coding source data <u>comprising a plurality of predetermined size data</u>
> <u>blocks,</u> for each predetermined size <u>data block</u> thereof, using a product code
> according to a code V and a code H and thereby generating a plurality of
> product-code codewords; and
>   outputting code-H codewords of each of said product-code codewords in a
> <u>code-H</u> codeword-by-codeword manner ~~and in an~~ alternating ~~fashion for~~ <u>between</u>
> said plurality of product-code codewords;
>   wherein said source data includes data of a plurality of sectors.

Claims 3-5 are prolix and apparently should be amended as follows:

3.   An error correction coding method according to claim 1, wherein ~~when code-H codewords of each of said product-code codewords are outputted, the code-H codewords are outputted in a codeword-by-codeword fashion such that~~ between the code-H codewords including data of the same sector, there does not exist a code-H codeword including data of another sector ~~included in said product-code codeword~~.

4.   An error correction coding method according to claim 1, wherein ~~when source data including data of a plurality of sectors is coded into said plurality product-code codewords,~~ data of each sector is equal in size ~~in said product-code codewords~~ and one code-H codeword includes data of only one sector.

5.   An error correction coding method according to claim 4, wherein ~~when code-H codewords of said product-code codewords are outputted, the code-H codewords are outputted in a codeword-by-codeword fashion such that~~ between the code-H codewords including data of the same sector, there does not exist a code-H codeword including data of another sector~~, the code-H codewords being outputted in an alternating fashion for said product-code codewords~~.

Claim 6 is prolix and awkwardly worded and apparently should be amended as

follows:

6.   An error correction coding method according to claim 1, wherein:
        each of a plurality of sectors of source data includes a plurality of identifiers (ID); and
        ~~when code-H codewords of said product-code codewords are outputted,~~ a predetermined number of code-H codewords each of which includes source data and a predetermined number of code-H codewords each of which includes only redundant data are alternately output~~ted~~ such that the ~~identifier exists~~ <u>identifiers exist</u> at a predetermined interval in said code-H codewords.

Claims 7 and 8 are elliptical, vague and awkwardly worded, and apparently

should be amended as follows:

7.   An error correction decoding method for use with an error correction decoding apparatus, comprising the steps of:
        distributing input data <u>comprising a plurality of predetermined size coded data blocks,</u> for each predetermined size <u>coded data block</u> thereof<u>,</u> ~~in an~~

alternating ~~fashion to~~ between a plurality of product-code codeword <u>block</u> forms; and

decoding each of said plurality of product-code codeword blocks in a general product-code decoding method and thereby obtaining source data.

8.   An error correction coding apparatus, comprising:

means for coding source data <u>comprising a plurality of predetermined size data blocks,</u> for each predetermined size <u>data block</u> thereof using a product code according to a code V and a code H and thereby generating a plurality of product-code codewords; and

means for outputting code-H codewords of each of said product-code codewords in a <u>code-H</u> codeword-by-codeword manner ~~and in an~~ alternating ~~fashion for~~ <u>between</u> of said plurality of product-code codewords.

Claims 9 and 10 are prolix and apparently should be amended as follows:

9.   An error correction coding apparatus according to claim 8, wherein:

~~means for coding, when~~ <u>said</u> source data includes data of a plurality of sectors, ~~the source data into said plurality product-code codewords, data of the same sector such that said~~ data of the same sector is included in one of said product-code codewords<u>,</u> ~~and~~ one code-H codeword includes data of only one sector<u>,</u>~~;~~ and ~~means for coding the source data such that~~ data of each said sector is included in ~~one of said plurality of product-code codewords and in~~ a predetermined number of code-H codewords of said plurality of code-H codewords of said one product-code codeword~~, said predetermined number of code-H codewords not including data of another sector~~; and

<u>said</u> means for outputting~~, when code-H codewords of each of said product-code codewords are outputted,~~ <u>outputs</u> the code-H codewords in a codeword-by-codeword fashion such that between the code-H codewords including data of the same sector~~,~~ there does not exist a code-H codeword including data of another sector included in said product code codeword.

10.   An error correction coding apparatus according to claim 8, wherein:

~~means for coding, when~~ <u>said</u> source data ~~includes~~ including data of a plurality of sectors ~~is coded into said plurality product-code codewords, data of each sector such that said~~ data of each sector is equal in size in said product-code codewords<u>,</u> ~~and~~ one code-H codeword includes data of only one sector<u>,</u>~~;~~ and ~~means for coding the source data such that~~ data of each <u>of</u> said ~~sector~~ <u>plurality of sectors</u> is included in each of said plurality of product-code codewords and in a predetermined number of code-H codewords of said plurality of code-H codewords of ~~said~~ one product-code codeword, said predetermined number of code-H codewords not including data of another sector; and

said means for outputting, ~~when code-H codewords of said plurality of product-code codewords are outputted,~~ outputs the code-H codewords ~~in a codeword-by-codeword fashion and in an alternating fashion for said plurality of product-code codewords~~ such that between the code-H codewords including data of the same sector, there does not exist a code-H codeword including data of another sector.

Claim 11 is prolix and awkwardly worded and apparently should be amended as

follows:

11.   An error correction coding apparatus according to claim 8, ~~further comprising means when~~ wherein:
        said source data includes a plurality of identifiers (ID), and
        said means for outputting, ~~when code-H codewords of said product-code codewords are outputted,~~ outputs a predetermined number of code-H codewords each of which includes source data and a predetermined number of code-H codewords each of which includes only redundant data in an alternating fashion such that the ~~identifier exists~~ identifiers exist at a predetermined interval in said code-H codewords.

Claims 12-17 are elliptical, vague and awkwardly worded and apparently should

be amended as follows:

12.   An error correction decoding method for use with an error correction decoding apparatus, comprising:
        means for distributing input ~~data for each~~ predetermined size coded data blocks, ~~thereof in an~~ alternating ~~fashion to~~ between a plurality of product-code codeword block forms; and
        means for decoding each of said plurality of product-code codeword blocks in a general product-code decoding method and thereby obtaining source data.

13.   Recording apparatus for error correction coding, comprising:
        a coding device for coding source data comprising a plurality of predetermined size data blocks, for each predetermined size data block thereof, using a product code according to a code V and a code H and thereby generating a plurality of product-code codewords;
        an output device for outputting code-H codewords of each of said product-code codewords in a code-H codeword-by-codeword manner ~~and in an~~ alternating ~~fashion for~~ between said plurality of product-code codewords; and
        a recording device for recording said code-H codewords.

14.   Reproducing apparatus for error correction coding, comprising:
       a reproducing device for reproducing data out of a disk;
       a distributing device for distributing ~~input data for each~~ predetermined size
~~thereof~~ coded data blocks of the reproduced data, ~~in an~~ alternating ~~fashion to~~
between a plurality of product-code codeword block forms; and
       a decoding device for decoding each of said plurality of product-code
codeword blocks in a general product-code decoding method and thereby
obtaining source data.

15.   Reproducing apparatus for error correction coding, comprising:
       a reproducing device for reproducing data out of a disk;
       a distributing device for distributing ~~input data for each~~ predetermined size
~~thereof~~ coded data blocks of the reproduced data, ~~in an~~ alternating ~~fashion to~~
between a plurality of product-code codeword blocks; and
       a decoding device for decoding each of said plurality of product-code
codeword blocks in a general product-code decoding method and thereby
obtaining source data.

16.   A transmitting apparatus for error correction coding, comprising:
       a coding device for coding source data comprising a plurality of
predetermined size data blocks, for each predetermined size data block thereof,
using a product code according to a code V and a code H and thereby
generating a plurality of product-code codewords;
       an outputting device for outputting code-H codewords of each of said
product-code codewords in a code-H codeword-by-codeword manner ~~and in an~~
alternating ~~fashion for~~ between said plurality of product-code codewords; and
       a transmitting device for transmitting said code-H codewords.

17.   A reproducing apparatus for error correction coding, comprising:
       a signal receiving device for receiving input data comprising a plurality of
predetermined size coded data blocks via a communication path;
       a distributing device for distributing input data for each predetermined size
coded data block thereof, ~~in an~~ alternating ~~fashion to~~ between a plurality of
product-code codeword blocks; and
       a decoding device for decoding each of said plurality of product-code
codeword blocks in a general product-code decoding method and thereby
obtaining source data.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 7, 12, 14, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,912,695 to Senshu (hereafter referred to as Senshu).

Reference is hereby made to Fig. 4 of Senshu, which shows a coded block comprising plurality of sectors (S1, S2, S3, ...), each of which is encoded with an ECC code "P" and with an ECC code "Q" to form a product code. Transmission of the coded block data is apparently performed row-wise.

5.   Claims 1, 2, 4, 6-8 and 11-17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,311,522 to Murakami (hereafter referred to as Murakami).

Reference is hereby made to Fig. 3C of Murakami, which shows a group of six product-coded blocks. Recording and reproduction of the group of coded blocks is apparently performed row-wise across the group. Each row is an inner code block (i.e. a "code-H codeword") and, as each row contains 190 bytes, each row can be equated to a "sector" of data, meaning that no data of another "sector" exists between data of one sector. ID words appear at regular intervals in the recorded data, as each row of each product-coded block begins with an ID word.

6.   Claims 1, 2, 4, 7, 8 and 12-17 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent No. 6,125,100 to Sensyu (hereafter referred to as Sensyu).

Reference is hereby made to Fig. 6B of Sensyu, which shows a group of two product-coded blocks, with odd and even-numbered rows (each row is a "code-H codeword") of a sector being interleaved between the two blocks. Recording and reproduction of the group of coded blocks is apparently performed row-wise across the group.

Allowable Subject Matter

7.   Claims 3, 5, 9 and 10 would be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (703) 305-9681. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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Business Center (EBC) at 866-217-9197 (toll-free).

Stephen M. Baker
Primary Examiner
Art Unit 2133

smb